TODAY'S LECTURE 2/9

Traditional Square of Opposition

Problems for the Traditional Square

STANDARD FORMS FOR CATEGORICAL STATEMENTS

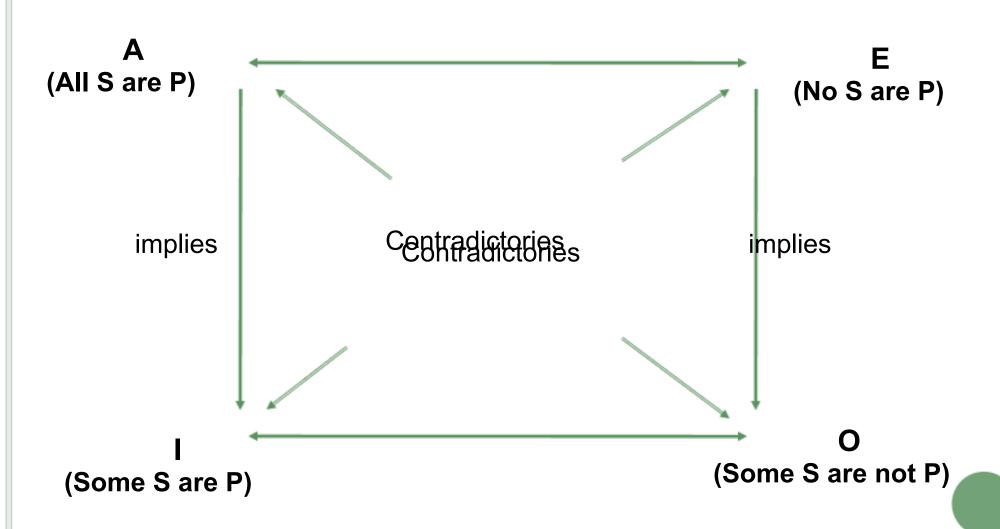| Name	Form
A	All S are P.
E	No S are P.
I	Some S are P.
O	Some S are not P.

THE TRADITIONAL SQUARE OF OPPOSITION

TRADITIONAL SQUARE OF OPPOSITION

A
(All S are P)

E
(No S are P)

implies

Contradictories
Contradictories

implies

I
(Some S are P)

O
(Some S are not P)

IMPLICATIONS

A-statements imply their corresponding **I**- statements

e.g. 'All humans are warm-blooded things' *implies*

'Some humans are warm-blooded things'

E-statements imply their corresponding **O**- statements

e.g. 'No humans are cold-blooded things' *implies*

'Some humans are not cold-blooded things'

CONTRADICTIONS

A-statements contradict their corresponding **O**-statements

e.g. 'All humans are warm-blooded things' *contradicts*

'Some humans are not warm-blooded things'

E-statements contradict their corresponding **I-**statements

e.g. 'No humans are cold-blooded things' *contradicts*
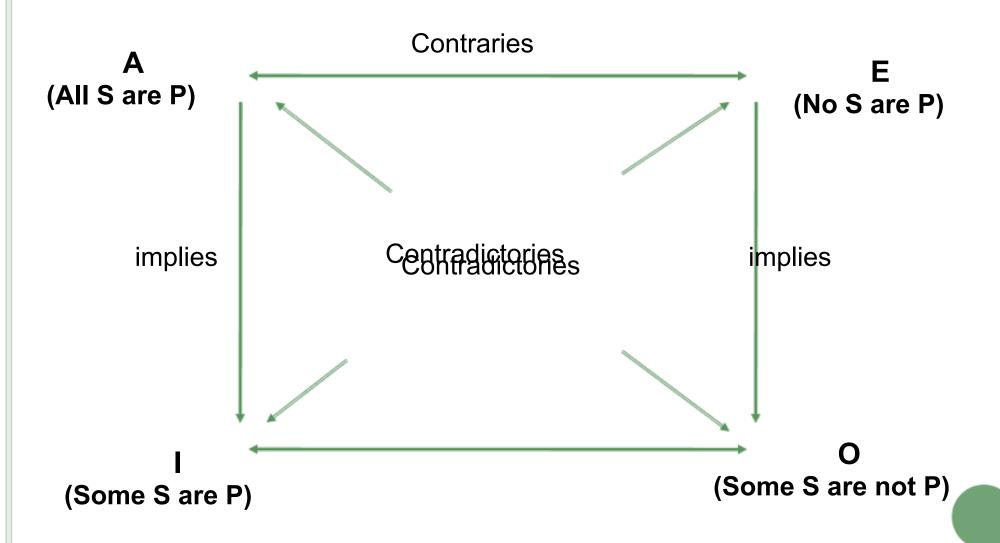
'Some humans are cold-blooded things'

WHAT EXACTLY IS A CONTRADICTION?

P contradicts Q

$=_{df}$

(If P is true, Q is false
and
If Q is true, P is false)

In other words, *they can't both be true **and** they can't both be false.*

TRADITIONAL SQUARE OF OPPOSITION

Contraries

A
(All S are P)

E
(No S are P)

implies

Centradictories
Contradictories

implies

I
(Some S are P)

O
(Some S are not P)

CONTRARIES: **A** AND **E**

- Two statements are *contraries* if they cannot both be true *but they can* both be false

- **A-** and **E-** statements are contraries.

A: All dogs are labs.

E: No dogs are labs.

- They are in this case both false, because some but not all dogs are labs.

MORE CONTRARIES

A: All Olympic swimmers are people pictured in tabloids.

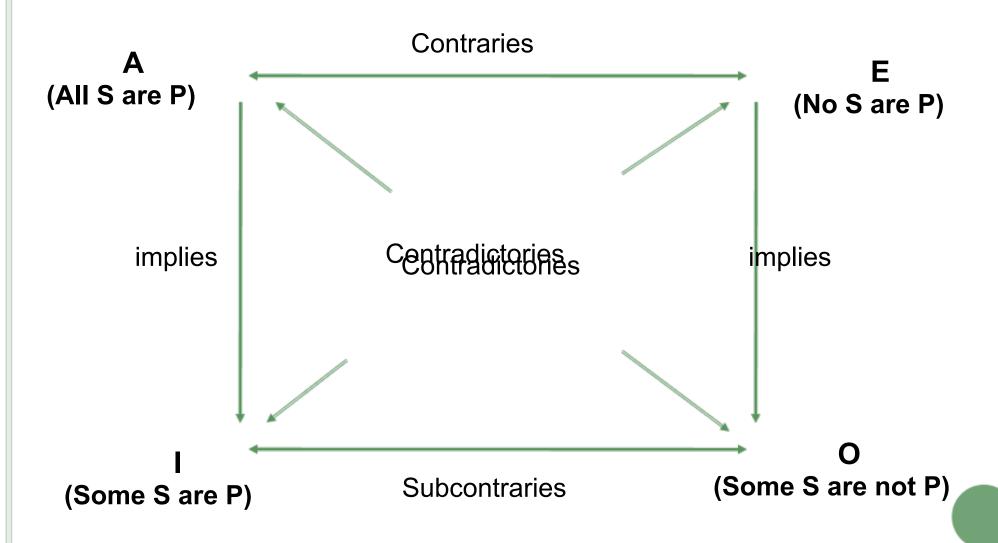E: No Olympic swimmers are people pictured in tabloids.

A: All W08 Phil 3 lectures are lectures attended by Noffsinger.

E: No W08 Phil 3 lectures are lectures attended by Noffsinger.

(he is not here today for those students not in class)

TRADITIONAL SQUARE OF OPPOSITION

A
(All S are P)

Contraries

E
(No S are P)

implies

Contradictories
Contradictories

implies

I
(Some S are P)

Subcontraries

O
(Some S are not P)

SUBCONTRARIES: **I** AND **O**

- Two statements are *subcontraries* if they can both be true *but they cannot* both be false.
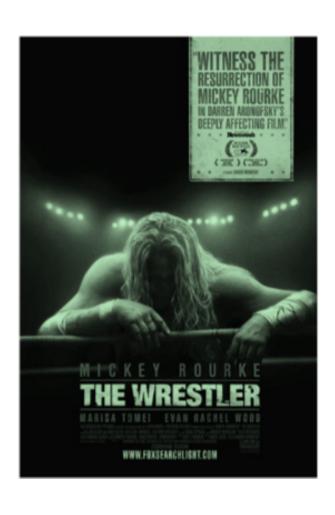
- **I-** and **O-** statements are subcontraries.

I: Some dogs are labs.

O: Some dogs are not labs.

- They are in this case both true, because some dogs are labs and some aren't. But they can't both be false.

MORE SUBCONTRARIES

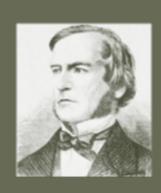I: Some dreams are things concerning childhood neighborhoods.

O: Some dreams are not things concerning childhood neighborhoods.

I: Some movies are somber flicks.

O: Some movies are not somber flicks.

PROBLEMS
FOR THE
TRADITIONAL SQUARE

NECESSARY TRUTHS PLAGUE THE *CONTRARY* RELATION

- Recall: Two statements are contraries if they cannot both be true **but they can both be false.**

- **A-** and **E-** statements are contraries.

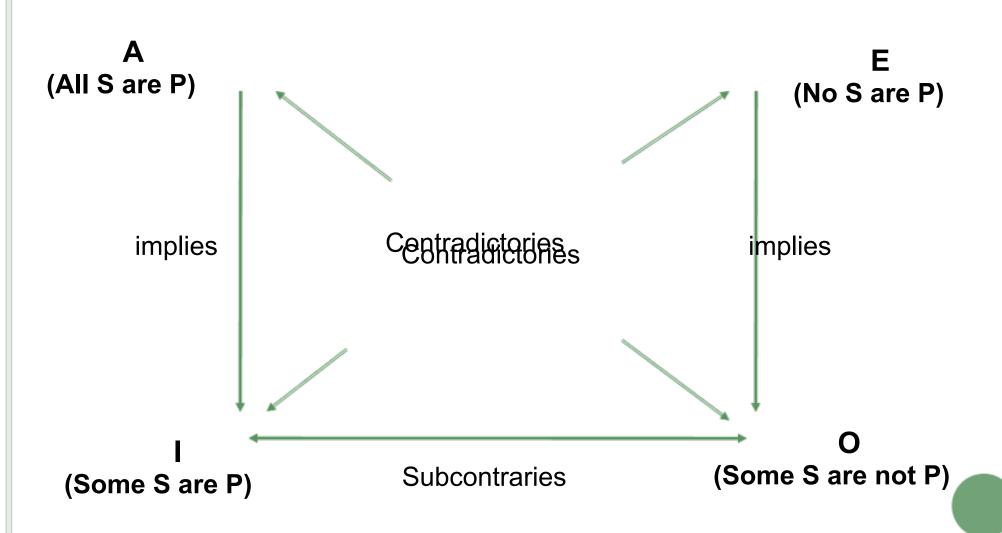A: All dogs are labs.

E: No dogs are labs.

- The problem: some A and E claims are not contraries!
  - Consider
    - A: All triangles are squares.
    - E: No triangles are squares.

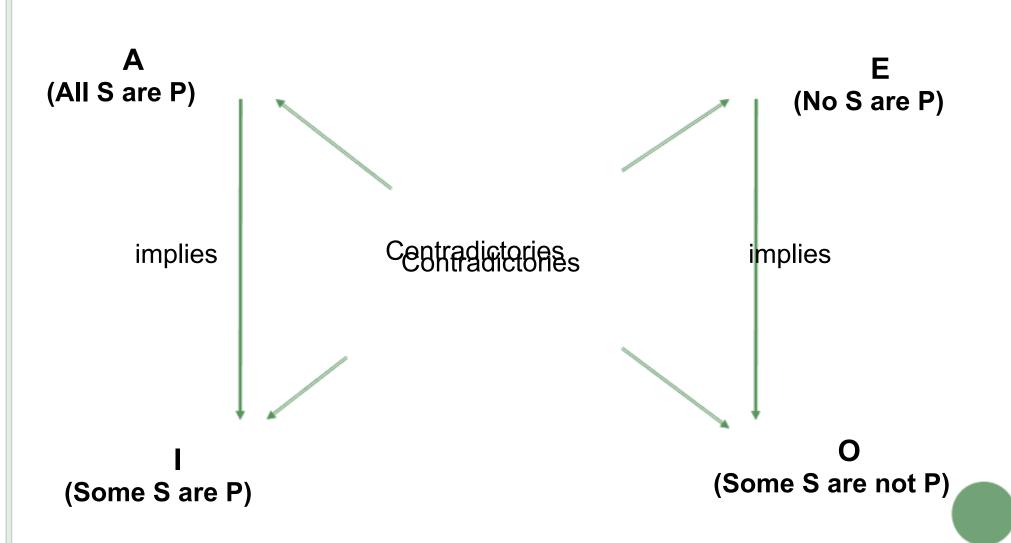'No triangles are squares' can never be false.

GOODBYE CONTRARIES

A
(All S are P)

E
(No S are P)

implies

Contradictories
Contradictories

implies

I
(Some S are P)

Subcontraries

O
(Some S are not P)

NECESSARY FALSEHOODS PLAGUE THE *SUBCONTRARY* RELATION

- Recall: Two statements are subcontraries if they **can both be true** but they cannot both be false.

- **I-** and **O-** statements are subcontraries.

I: Some dogs are labs.

O: Some dogs are not labs.

- The problem: some I and O claims are not subcontraries!
  - Consider
    - I: Some triangles are squares.
    - O: Some triangles are not squares.

'Some triangles are squares' can never be true.

GOODBYE SUBCONTRARIES

A
(All S are P)

E
(No S are P)

implies

Contradictories
Contradictories

implies

I
(Some S are P)

O
(Some S are not P)

THE IMPLIES RELATION ALSO HAS TO GO

According to the Traditional Square, A-statements imply their corresponding I-statements: All implies Some.

Modern logicians parse 'All S are P' as 'If something is an S, then it is a P'. Example:

All people born in the year 2010 are people younger than   Obama.

Notice: this does not commit us to thinking that these people exist. It is a cloaked conditional claim: *If* somebody is born in the year 2010, then they are younger than Obama.

A: All invisible gnomes are things that cannot be seen. (true)

I: Some invisible gnomes are things that cannot be seen.

(false, they do not exist)

A: All unicorns are magical beasts. (true)

I: Some unicorns are magical beasts. (false, they do not exist)

NO S ARE P DOES NOT IMPLY SOME S ARE NOT P

E: No dragons are invertebrates. (true)

O: Some dragons are not invertebrates.

(false, they do not exist)

E: No humans with 10 heads are humans with less than 5 heads. (true)

O: Some humans with 10 heads are not humans with less than 5 heads.

(false, they do not exist)

GOODBYE IMPLIES

A
(All S are P)

E
(No S are P)

Contradictories
Contradictories

I
(Some S are P)

O
(Some S are not P)